

Preference Ballot: *Candidates are ranked in order of preference*

Linear Ballot: *Ties are not allowed.*

Preference Schedule: *grouping identical ballots into a table.*

Transitive: *If candidate X is above Y in the preference schedule, X would get the vote if down to only X and Y*

The table below shows the preference ballots for an election with 16 voters and 3 candidates.

	Ballots															
1st	B	A	C	A	A	C	C	C	A	B	A	C	C	C	B	B
2nd	C	B	B	B	B	B	B	B	B	C	B	B	B	B	C	C
3rd	A	C	A	C	C	A	A	A	C	A	C	A	A	A	A	A

1. Write a preference schedule.

	7	5	4
1st	C	A	B
2nd	B	B	C
3rd	A	C	A

2. Which candidate has a plurality of the first-place winners?

C

3. Which candidate has the fewest last-place votes?

B → 0 last-place votes

An election is held to choose the chair of a department at a university. The candidates are Professors Argand, Brandt, and Chavez (A, B, C for short). The following table gives the preference schedule for the election.

Number of Voters	6	2	3	9
1st choice	A	A	B	C
2nd choice	B	C	A	B
3rd choice	C	B	C	A

4. How many people voted in this election?

20

5. How many first-place votes are needed for a majority?

11

Suppose that the election rules are that when there is a candidate with a majority of the first-place votes, he or she is the winner. Otherwise, all candidates with 20% or less of the first place votes are eliminated and the ballots are recounted.

Number of Voters	6	2	3	9
1st choice	A	A	B	C
2nd choice	B	C	A	B
3rd choice	C	B	C	A

6. Which candidates are eliminated?

B

7. Find the preference schedule for the recount.

	6	2	3	9
1 st	A	A	A	C
2 nd	B	C	C	B
3 rd	C	B		A

8. Which candidate is the majority winner after the recount?

A → 11 first place votes

9. The Fruit & Vegetable Connoisseur Society gather to decide on which fruit or vegetable offers the most nutrients. There are 900 members who have to choose between apples (A), bananas (B), and carrots (C). Twenty-five percent select apples over carrots and carrots over bananas. Thirty percent select bananas the most and apples the least. The rest like carrots the most and bananas the least. Write out the preference schedule.

	225	315	360
1 st	A	B	C
2 nd	C	C	A
3 rd	B	A	B

10. In the table below, candidates are listed by rank (1st, 2nd, etc). Rewrite the following preference schedule in the conventional format used in the book.

Number of Voters	101	87	92	73
A	3	1	4	2
B	4	3	3	1
C	1	4	2	3
D	2	2	1	4

	101	87	92	73
1 st	C	A	D	B
2 nd	D	D	C	A
3 rd	A	B	B	C
4 th	B	C	A	D